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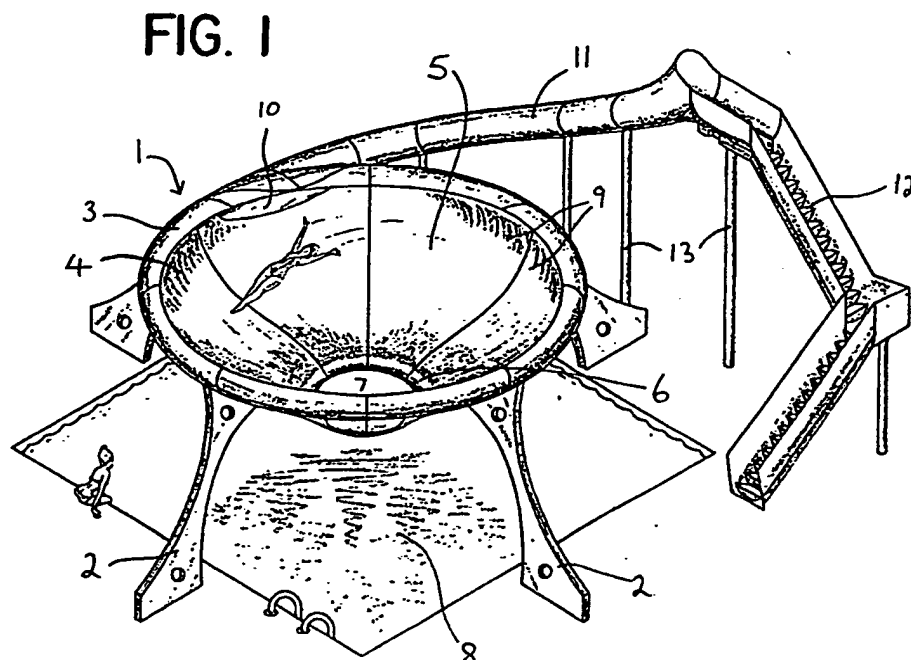
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GB 1566186 A GB 1217712 A US 4258911 A
US 4172593 A

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(54) **Water or other leisure slides**

(57) Apparatus which allows a user of a slide to take up a free attitude during at least part of a sliding descent is described. A large bowl is provided which gives a slide user a substantial degree of freedom. An individual entering the bowl in sliding motion under the partial influence of gravity can circuit and descend the bowl until reaching an exit point, either coming to rest or exiting the bowl while still sliding into a receiving means such as a splash pool, crash mat, or other suitable soft area. The user may slide with the aid of flowing water or a waxed plastic bag.



The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1982.

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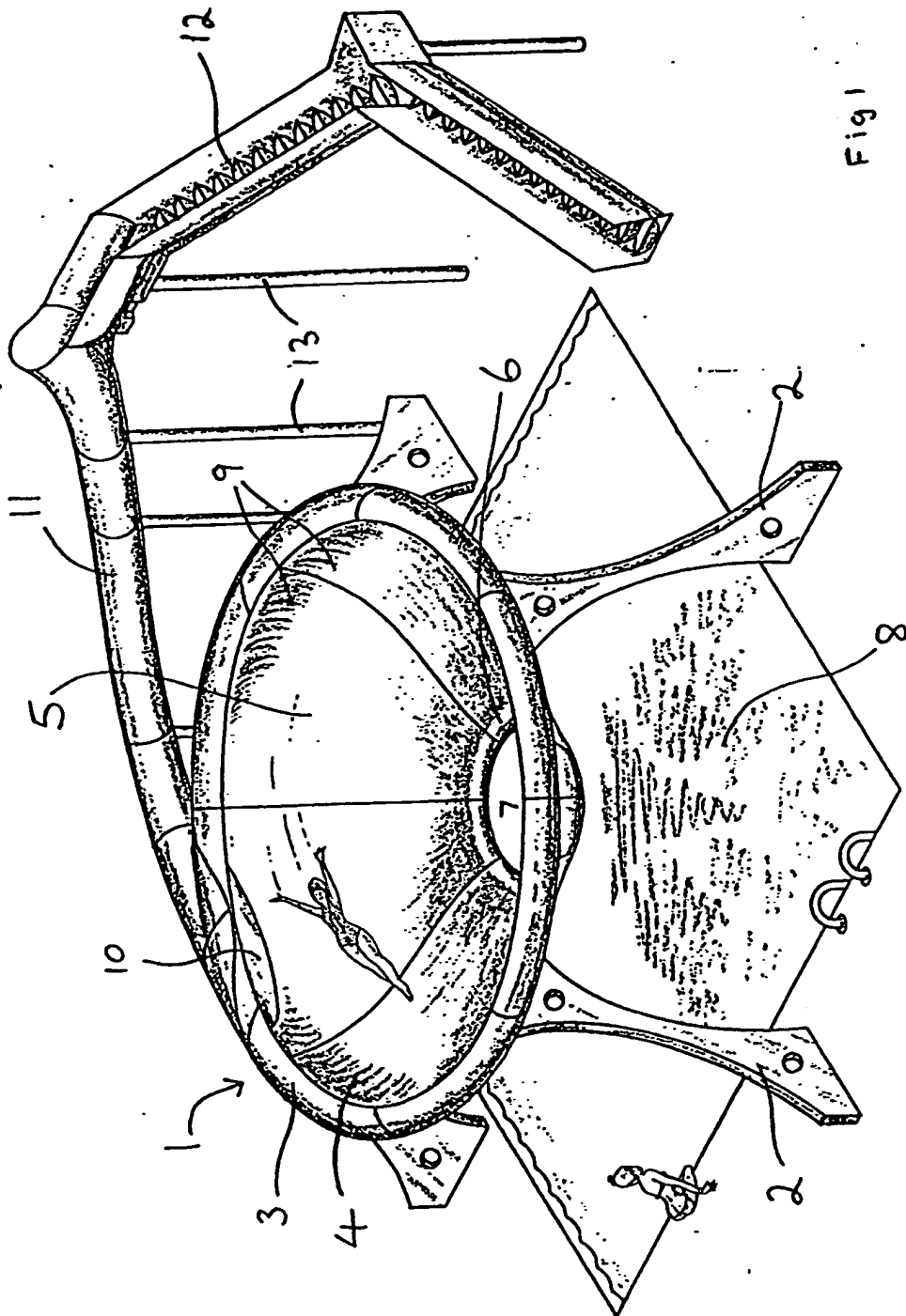


Fig. 1

Fig 2

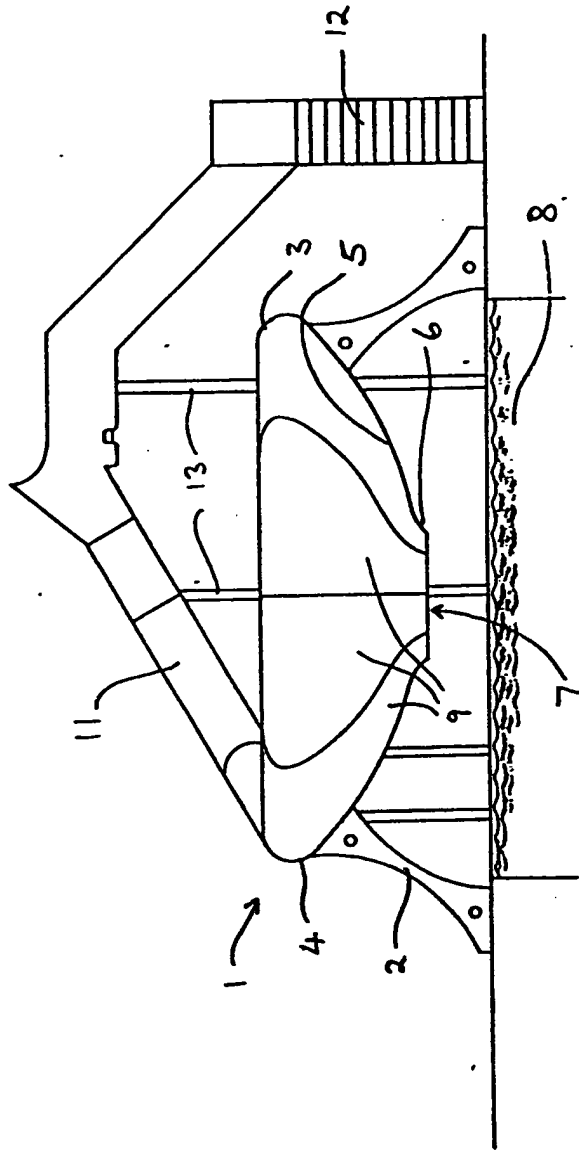
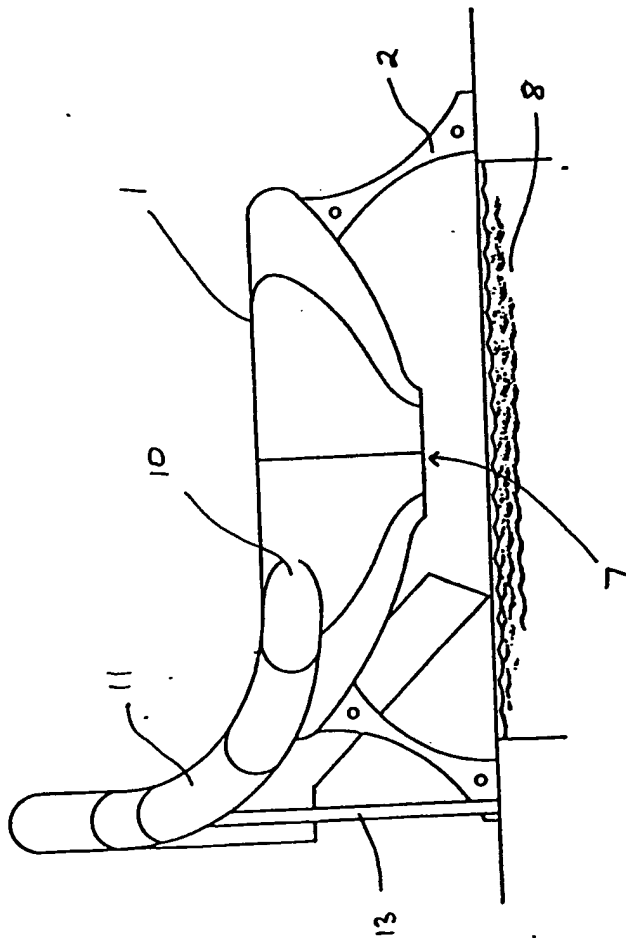


Fig 3



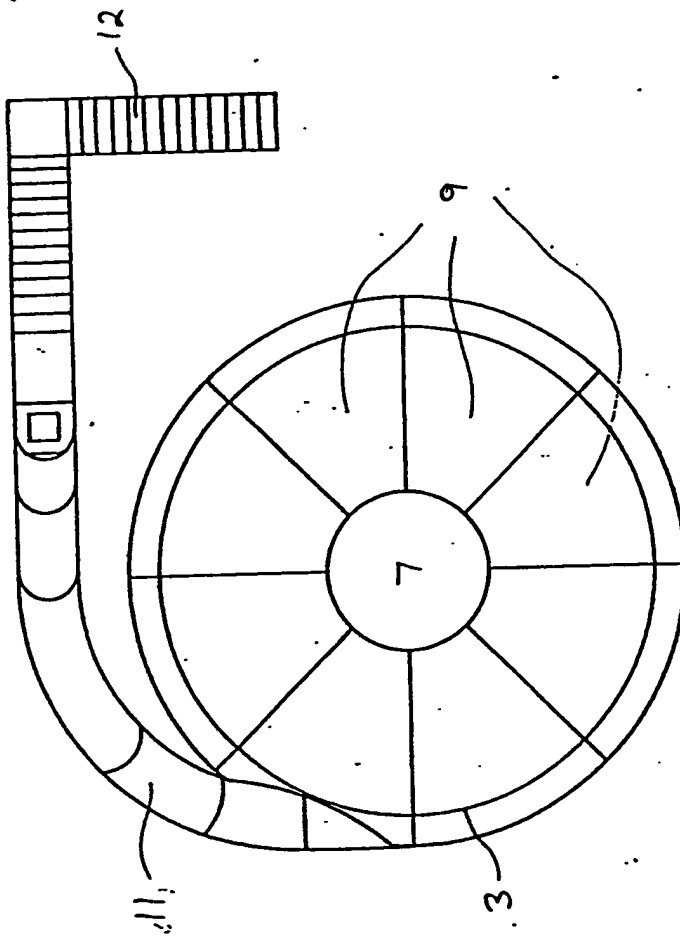


Fig 4

"Improvements in or relating to leisure slides"

This invention relates to a new concept in leisure and amusement slides. More particularly it relates to a large bowl which provides a slide user with a degree of freedom not obtained in conventional slides.

Originally developed in the USA, waterslides and flumes as used in the leisure industry have been in existence for many years. The basic concept is that a user descends under gravity, supported on a cushion of water, down the length of a suitably friction free, e.g. glass reinforced plastic, tube or open chute until being deposited into a suitable receiving area e.g. a splashdown pool. The speed of descent depends upon the configuration of the slide and its gradient, and on the physical attitude and courage of the user (slider). Conventional slides are, however, restrictive in that the slider's body is confined throughout to a path identical to that of slide.

The present invention provides apparatus which allows a user of a slide to take up a free attitude during at least a part of a sliding descent.

In one aspect, therefore, we provide a bowl adapted for leisure use by humans and which is adapted in use to be supported, which bowl has a cross-sectional configuration whereby an individual entering said bowl in sliding motion at least partially under the influence of gravity is allowed to circuit and descend at least a portion of the bowl, means being provided to permit said individual either to exit said bowl whilst still in sliding motion, or else to come to rest.

In one embodiment, the bowl is adapted for

use as a water sliding bowl and a slider enters the bowl moving under gravity by means of a conventional water slide. This may either be built into the structure of the bowl, or independently supported, but the point of entry of a slider into the bowl is desirably within the bowl at or near the upper rim of the bowl, though may be at any point provided that the momentum possessed by the slider sends the slider into the bowl and permits him or her at least a partial revolution and descent of the bowl. With practice and suitable arrangement of the initial slide, it may be possible for a slider to accomplish several complete circuits of the bowl before exiting the bowl or coming to rest, though this may depend upon the shape of the actual bowl itself. A steep-sided bowl combined with a relatively slow inlet speed will be unlikely to allow a full revolution, whereas a slightly shallower bowl combined with a fast inlet speed could allow several revolutions.

The bowl itself may be of relatively constant angle, though may also be "shelved", portions of the bowl having angles to the horizontal of from between 10 and 60°. These can be selected by an installer depending upon the nature of his customers and of the installation that he wishes to provide. We have in general found that a steep wall angle at the point of entry, e.g. of around 90°, starts revolution off satisfactorily, and as gravity takes over from centrifugal force, the angle of the sides is made more shallow so as to compensate for the reducing centrifugal element. At this point, an angle of around $30 \pm 10^\circ$ is suitable.

The bowl may typically have a depth from 1-4 metres, and a diameter from 6 to 20 metres depending on the expected volume of usage and the size of the overall installation. Anything less than 6 metres might be considered rather small on a human scale,

and anything larger than 20 metres might be felt over large bearing in mind that it is anticipated that use will be regulated so that no more than one or two people will (for safety reasons) be allowed to swirl around the bowl at any one time.

Means for exiting the bowl will, in one embodiment, generally comprise an aperture centrally situated at the foot thereof. This will be of sufficient diameter to allow safe exit of an individual, e.g. of from 2-3 metres, though alternative embodiments could be provided in which an aperture of less than this, e.g. of about 1 metre or less, where it was desired to continue the slide with a further tube.

In common with practically all slides of this type, there will be provided means for receiving the users in a safe and uninjured manner. Where waterslides are installed, there is usually a splash pool or remote corner of a swimming pool. The aperture of a bowl of the invention in this embodiment will desirably be situated over a receiving pool of suitable depth, but other suitably soft receiving means are possible, such as crash mats, ballpits, inflated cushions and the like. In an alternative embodiment, however, the bowl need not be provided with an exit aperture, but rather may be of a larger size such that a pool or other receiving area forms part of the base of the bowl. In this situation, an individual slider may come to rest at the foot of the bowl in the water and then may exit, e.g. by means of a step ladder from the centre thereof upwardly.

One embodiment of the invention will now be described with reference to the accompanying drawings in which:-

Figure 1 shows a perspective sketch of a water sliding bowl of the invention supported in position over a splashdown pool and with a conventional entry slide;

Figure 2 shows a side elevation sketch of the installation of Figure 1.

Figure 3 shows an end elevation of the installation of Figure 1;

and Figure 4 show a plan view of the installation of Figure 1.

Referring to Fig. 1, this serves to illustrate an embodiment of the bowl in use. A circular bowl 1 of approximately 10 metres diameter and 3 metres depth is shown supported on a plurality of legs 2 forming part of an adequate supporting framework (not shown). The bowl comprises a rim portion 3 forming the upper part of a substantially vertical portion 4 of the bowl. Below the vertical portion is a portion 5 having a shallower angle of e.g. 15-45° from the horizontal and this in turn leads to a further steeper portion 6 which terminates in a centrally positioned aperture 7 of approximately 2.5 metres in diameter. This aperture is situated over a receiving area 8 in the form of a splashdown pool of adequate safe depth.

The bowl is formed of a plurality of suitable molded or formed sections 9 which are bolted, adhered or otherwise fastened together along outwardly turned flanges (not shown) outside the bowl thereby providing a smooth and safe interior surface that will not snag, scratch, abrade or otherwise cause injury or impede sliding progress. The sections are formed of e.g. glass fibre reinforced plastic, though any suitably strong, smooth and durable material could be used. The material may be coloured if desired and maybe transparent or opaque.

The bowl is provided around and under its rim with a perforated pipe or hose connected to a supply of water (neither shown) which provided jets of water down the internal surface of the bowl to reduce friction and facilitate sliding. We have found approximately 20 gallons a minute to be a reasonable amount of

20 gallons a minute to be a reasonable amount of water needed to lubricate a bowl 8 metres in diameter.

The bowl is provided also with an inlet means 10 in the form of a tube forming the end of a descending tubular slide 11 of similar material and conventional construction. This slide starts at a higher level than the bowl 1 and the start is reached by means of a stairway 12 also of similar material and of conventional construction. The whole is of course adequately supported by pillars 13.

In use, an individual sets off down the sloping tube slide 11 from the top of the stairway 12. A flow of water down the tube will reduce friction and provide a cushion of water to assist travel. The individual gains speed and enters the bowl at 10 travelling at perhaps from 15-50 kilometres per hour (or even higher depending upon the initial slide). Under the effect of this speed, the individual circuits the bowl, descending slightly as the centrifugal element reduces. The individual may achieve two or three circuits (or more) if travelling very fast on entry but as friction slows the individual down and gravity takes over, the individual descends down across the sloping portion 5 and eventually passes through the exit aperture 7 into the splashdown area 8. The slight steepening of the area of the bowl at 6 assists in directing the individual safely through the exit aperture.

It will be appreciated that the size of the bowl and the gradients of the access slide and bowl can be tailored to meet specific requirements at individual locations. It will further be appreciated that the bowl could be supported by other means, such as within a suspended frame, or it could be constructed of concrete lined with a suitable plastic lining. Neither of these would of course depart from the spirit of the invention.

use as a water slide. However, with minor changes, it could readily be adapted for use by individuals descending in waxed plastic bags sliding and falling into a receiving area in the form of a thick foam rubber crash mat or ballpit. Again, other possibilities will suggest themselves and are within the spirit of the invention.

If desired, the bowl, may, for external use, be provided with a cover. This cover could, if desired, be light-impermeable and light within the bowl could be provided by means of inset coloured electric lights, thus creating a colourful disco-like effect.

Claims:

1. A bowl adapted for leisure use by humans and which is adapted in use to be supported, which bowl has
5 a cross-sectional configuration whereby an individual entering said bowl in sliding motion at least partially under the influence of gravity is allowed to circuit and descend at least a portion of the bowl, means being provided to permit said individual either to exit said
10 bowl whilst still in sliding motion, or else to come to rest.
2. A bowl as claimed in claim 1 which is a water-sliding bowl.
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3. A bowl as claimed in claim 2 wherein the point of entry of the individual into the bowl enables the momentum possessed by the individual to send him into the bowl and to permit him at least a partial revolution
20 and descent of the bowl.
4. A bowl as claimed in any of claims 1 to 3 in which the individual enters the bowl moving under gravity by means of a conventional water slide, this
25 being either built into the structure of the bowl or independently supported.
5. A bowl as claimed in any of claims 1 to 4 which has a depth of 1 to 4 metres and a diameter of 6 to 20
30 metres.
6. A bowl as claimed in any of claims 1 to 5 wherein portions thereof have angles to the horizontal from 10° to 60°.

7. A bowl as claimed in any of claims 1 to 6 wherein, at the point of entry of an individual, the bowl has a portion at 90° to the horizontal.

5 8. A bowl as claimed in any of claims 1 to 7 wherein means is provided to receive the user, such means being selected from a splash pool, a crash mat, ballpit or inflated cushion.

10 9. A bowl as claimed in any of claims 1 to 8 wherein the means provided to permit said individual to exit said bowl is an aperture centrally situated at the foot of the bowl.

15 10. A bowl as claimed in claim 1 substantially as hereinbefore described.

11. A bowl for leisure use by humans substantially as hereinbefore described and with reference to any of
20 the accompanying drawings.

12. A water slide assembly which includes a bowl as claimed in any of claims 1 to 11.

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